

size and colour), was not disposed to give the environment much weight.

"One of the most singular of Darwin's conclusions" is, says Mr. Syme, "that it is the female that selects the male, and not the male that selects the female;" yet on the next page we find that "the female selects the handsomest and most valiant male:" further, that the sexual struggle is not between the males, but "is rather a struggle between the opposite sexes." Much that has been written on this subject is purely conjectural.

The following will probably be new to many:—"Butterflies put up their wings and expose their underside to the action of the sun;" they "have their brilliant non-protective tints on the upper surface of their wings, while the underside is almost invariably protectively coloured." Again, "when chased," we are told, "they suddenly disappear by alighting on some object coloured like themselves, whereby they escape observation, and so confident are they that they remain motionless even when an enemy approaches within a few inches of them."

One of the objections to natural selection—unnoticed by Mr. Syme, but not unnoticed by Darwin himself—is the diversity of means for the same end.

The fertilization of plants by insects is discussed at length. Darwin believed that their relationship was mutually beneficial. Mr. Syme, on the contrary, asserts "that insects of all kinds are in various ways destructive to plants," and he denies that flowers owe their conspicuous colours to insects.

There is no date and there is no index to this book, which only consists of 164 pages. There are several misspellings—such as "englossa," "Artimia," "strachys," "belliafolia," "decimation," &c.; printed in London, and the author probably in Melbourne, may sufficiently account for such errors. Nevertheless we shall be glad to see Mr. Syme again; right or wrong, his book is undoubtedly suggestive.

MISCELLANEOUS.

Some Anatomical Characters of Hyperoodon rostratus.

By M. E.-L. BOUVIER.

I HAVE had the opportunity of studying, at the marine laboratory of Saint-Vaast, a female *Hyperoodon*, measuring 7.20 m. in length, which had stranded on the beach near Fort de la Hougue.

The animal had a short time previously given birth to a young one; its mammae were full of milk, the internal organs of generation

contained a large quantity of sanguinolent matter, and the annular folds of the vagina, which represent a more or less perfect *os uteri*, were scarcely indicated. The mammae are at least 1.15 m. long, with a maximum breadth of 0.22 m., and are only a few centimetres thick; each of them is traversed by a longitudinal duct, which commences abruptly about 10 cm. from the anterior extremity, and continues, without greatly increasing its calibre, as far as the reservoir situated beneath the teat; besides this two large lateral ducts open into this reservoir, which is of comparatively small size. The milk is yellowish white, of the consistency of cream; it has an agreeable nutty flavour. The mammae are covered throughout their entire length by a layer of the cutaneous muscle; this layer must be the most active agent in the phenomena of compression which produce the emission of the milk; in front it acts chiefly by means of its external aponeuroses, which are here almost the only covering of the mamma; posteriorly the muscle itself is applied directly to the gland. The cutaneous muscle is elsewhere very well developed, and in several regions of the flanks exceeds 4 cm. in thickness. In front it covers at certain points the prolongations which are sent off, to a distance of 1 m. behind the junction of the lips, by the spongy and largely areolar tissue, which contains the spermaceti oil in abundance.

The stomach is composed of ten successive chambers. The capacity of the first is nearly equal to that of the nine other chambers; its mucous membrane is covered with convolutions which are grouped round three perfectly distinct centres. The nine subsequent chambers form a mammillated mass, which is very sharply separated from the first; they are separated from one another by perforated septa, which were described a long time ago; the first is at the most as large as the fist, the last, on the other hand, is of enormous size. In the duodenal dilatation, which is greatly developed, we observe a little ampulliform swelling at the orifice of the hepato-pancreatic duct; besides this it presents a large semi-lunar valvular fold in front of the point where it passes into the narrow duodenum. There are a number of little glands at the posterior extremity of the rectum, in the immediate vicinity of the anus. The liver is divided into two lobes, one of which is situated to the right, the other to the left; to the right lobe is attached a small dorsal one.

The aortic trunk is greatly swollen at its exit from the heart; immediately above the sigmoid valves it gives rise to two coronary arteries, and exhibits, besides, a perforated *ductus arteriosus* which brings it into connexion with the pulmonary artery. The thoracic plexuses are much less developed than those of the *Delphinidae*, but more so than those of the *Mysticetes*. Instead of extending to the further end of the thoracic chamber, the network terminates posteriorly at the level of the sixth rib. The plexus of the right side, which alone I was able to examine, is traversed, a short distance

from its external border, by a longitudinal artery which starts from the right brachio-cephalic trunk, and which probably represents the internal thoracic artery. The intercostal arteries are separated at their origin, and take part, like the foregoing artery, in the formation of the plexuses. There is only a single renal artery on each side; but we find two renal veins, a large one in front, and a much smaller one behind. The obliterated umbilical arteries, which terminate at the summit of the bladder, are connected with the hypogastric arteries, which each divide into two branches and form, in spite of their small size (the little finger can scarcely be inserted into them), the sole source of the blood contained in the enormous genital arterial plexus. This plexus completely covers the anterior portion of the vagina, the uterus and its cornua; but it does not extend in front into the broad ligament.

The venous plexuses appear to be little developed, and those of the psoas are wanting as in the Mysticetes. On the other hand, there is a venous sinus in each of the large lobes of the liver, and the sinus of the vena cava inferior assumes enormous proportions. A large longitudinal vein traverses the right thoracic plexus, and receives three large branches at least from the medullary cavity; it is by this vein, which functionally replaces the absent azygos veins, that the blood of the medullary veins returns into the vena cava anterior. In short, judging by all the characters with which we are so far acquainted, the circulatory apparatus of *Hyperoodon* appears to approach that of the terrestrial ancestral forms of the group, less, however, than that of the Mysticetes, but much more than that of the non-Ziphioid Cetodonts.—*Comptes Rendus*, t. cxiii. no. 17 (Oct. 26, 1891), pp. 563-565.

On Self-pollination in Amsonia Tabernæmontana.

By THOMAS MEEHAN.

To my mind the number of plants which have their flowers constructed for self-fertilization is so large, that it would seem hardly worth particularizing them but for the industrious work of noting the opposite characteristics which prevails in our scientific serials. It seems not fair to true science that only one side of nature's story should be told. This is why I record some self-fertilizing cases.

It has been left to me to point out that only those plants which have other means of persistence than by seeds have flowers which are wholly dependent on external agents for pollination, and also to show that while flowers which have arrangements for self-fertilization are abundantly fertile, those which cannot make use of pollen without assistance are frequently barren, and are at a sad disadvantage in making their way through the world. So clearly has this been worked out to my mind, that when a plant is found abundantly